

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 22 May 2001 (22.05.01)	
International application No. PCT/AU00/01085	Applicant's or agent's file reference FP13348 TPG/MS
International filing date (day/month/year) 11 September 2000 (11.09.00)	Priority date (day/month/year) 10 September 1999 (10.09.99)
Applicant ABBOTT, Catherine, Anne et al	

1. The designated Office is hereby notified of its election made:



in the demand filed with the International Preliminary Examining Authority on:

05 April 2001 (05.04.01)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740 14.35	Authorized officer Charlotte ENGER Telephone No.: (41-22) 338 83 38
--	---

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 27 APR 2001

WIPO

PCT

Applicant's or agent's file reference FP13348/TPG/MS	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. PCT/AU00/01085	International Filing Date (<i>day/month/year</i>) 11 September 2000	Priority Date (<i>day/month/year</i>) 10 September 1999
International Patent Classification (IPC) or national classification and IPC Int. Cl. ⁷ C07K 14/47; C12N 9/64, 15/12; C12Q 1/37; A61K 38/48; A61P 19/02, 31/18, 37/00, 37/06; G01N 33/53.		
Applicant THE UNIVERSITY OF SYDNEY et al		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2.	This REPORT consists of a total of 3 sheets, including this cover sheet. <input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheet(s).
3.	This report contains indications relating to the following items: I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 5 April 2001	Date of completion of the report 12 April 2001
Name and mailing address of the IPEA AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer FRANCES RODEN Telephone No. (02) 6283 2239

I. Basis of the report**1. With regard to the **elements** of the international application:***

- ☒ the international application as originally filed.
- ☐ the description, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the drawings, pages , as originally filed,
 pages , filed with the demand,
 pages , received on with the letter of
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , received on with the letter of

2. With regard to the **language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☒ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-27	YES
	Claims	NO
Inventive step (IS)	Claims 1-27	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-27	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

The following documents cited in the ISR have been considered:

1. FEBS Letters, vol 458, pages 278-284, 1999, C. A. Abbott et al.
2. European Journal of Biochemistry, vol 239, pages 248-258, 1996, E. Jacotot et al.

Novelty and Inventive Step

Claims 1-27 are novel and contain an inventive step in light of the above two citations. Neither citation discloses the peptide of SEQ ID NO:1 (DPP8), the 4 amino acid sequences as claimed in claim 1(b) having the substrate specificity of the sequence ID NO:1, or a sequence having at least 60% homology with and the substrate specificity of SEQ ID NO:1.

Citation 1 discusses the significance of a conserved sequence motif in the β -propeller domain of the DPP IV-like gene family. The peptide DPP8 is not disclosed.

Citation 2 discloses a novel form of a cell-surface-expressed protein that has dipeptidyl-peptidase IV activity. The peptides and methods of claims 1-27 are not disclosed.

Industrial Applicability

The claims have industrial applicability due to the potential use of the peptides, proteins, methods, nucleic acids etc to treat diseases and/or to identify inhibitors in order to treat diseases

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/01085**A. CLASSIFICATION OF SUBJECT MATTER**

Int. Cl. C07K 14/47, C12N 9/64, 15/12, C12Q 1/37, A61K 38/48, A61P 19/02, 31/18, 37/00, 37/06, G01N 33/53.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Database: STN File Reg. CA and ANGIS. CA: subsequences of claim 1, Angis: SEQ ID NOS 1 and 2 and homology search.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	GenPept, Accession Number BAA 91059, submitted 15 February 2000, T. Kawakami et al, "NEDO human cDNA sequencing project."	1-3, 16-19
A	FEBS Letters, vol 458, pages 278-284, 1999, C.A. Abbott et al, "Two highly conserved glutamic acid residues in the predicted beta propeller domain of dipeptidyl peptidase IV are required for its enzyme activity."	1-27
A	European Journal of Biochemistry, vol 239, pages 248-258, 1996, E. Jacotot et al, "Dipeptidyl-peptidase IV-beta, a novel form of cell-surface-expressed protein with dipeptidyl-peptidase IV activity."	1-27

☒ Further documents are listed in the continuation of Box C
 ☐ See patent family annex


* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search
16 October 2000Date of mailing of the international search report
18 OCT 2000Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaustalia.gov.au
Facsimile No (02) 6285 3929

Authorized officer


FRANCES RODEN
 Telephone No (02) 6283 2239

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU00/01085

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P.A	Immunological Reviews, vol 174, pages 172-191, 2000, G W McCaughan, "Molecular pathogenesis of liver disease: an approach to hepatic inflammation, cirrhosis and liver transplant tolerance."	1-27

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 March 2001 (22.03.2001)

PCT

(10) International Publication Number
WO 01/19866 A1(51) International Patent Classification: C07K 14/47,
C12N 9/64, 15/12, C12Q 1/37, A61K 38/48, A61P 19/02,
31/18, 37/00, 37/06, G01N 33/53(74) Agent: GRIFFITH HACK; GPO Bo : 4164, Sydney,
NSW 2001 (AU).

(21) International Application Number: PCT/AU00/01085

(22) International Filing Date:
11 September 2000 (11.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PQ 2762 10 September 1999 (10.09.1999) AU
PQ 5709 18 February 2000 (18.02.2000) AU(71) Applicant (for all designated States except US): THE
UNIVERSITY OF SYDNEY [AU/AU]; Parramatta
Road, Sydney, NSW 2006 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ABBOTT, Catherine,
Anne [AU/AU]; 288 Trafalgar Street, Annandale,
NSW 2038 (AU). GORELL, Mark, Douglas [AU/AU]; 9
Piper Street North, Annandale, NSW 2038 (AU).(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UC, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE), OAPI patent (BF, BI, CF, CG,
CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



WO 01/19866 A1

(54) Title: DIPEPTIDYL PEPTIDASES

(57) Abstract: A novel human dipeptidyl aminopeptidase (DPP8) with structural and functional similarities to DPPTV and fibroblast activation protein (FAP) has been identified and characterized. The novel peptide comprises the sequence ID NO: 1, the amino acid sequences His⁷⁴GlyTrpSerTyrGlyGlyTyrLeu, Leu⁸¹⁶AspGluAsnValHisPheAlaHis, Gln⁸⁴⁷ArgHisSerIleArg, Phe²²⁵ValLeuGlnGluGluPhe, or a sequence having at least 60 % homology with, and the substrate specificity of SEQ ID NO:1. A gene encoding the dipeptidyl peptidase and uses of the dipeptidyl peptidase.